What is claimed is:

1. A system for channelizing an IF wideband input signal into separated channelized digital output signals, the system comprising,

a complex mixer for quadrature demodulation of the IF wideband input signal into a complex signal,

a polyphase clock generator for generating polyphase clock signals each having the same clocking signal that is staggered in phase over a clock cycle,

a parallel converter comprising a bank of samplers for respective sampling the complex signal into staggered sampled complex signals and comprising a bank of converters for converting the staggered sampled complex signals into respective sampled digital complex signals, each of the samplers of the bank of sampler sampling the complex signals at a rate of the clock cycle at a respective staggered phase, and

a parallel filter bank comprising a polyphase filter bank of filters for respective filtering the sampled digital complex signals into respective filtered complex signals and comprising a processor for transforming the filtered complex signals into the channelized digital output signals.

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2. The system of claim 1 wherein,

the processor is a Fast Fourier Transform processor for computing N point Fast Fourier transforms of the N filter complex signals once every clock cycle of $(f_s/N)^{-1}$ seconds.

3. The system of claim 1 wherein,

the polyphase filter bank comprises a plurality of digital filters each of which is a finite impulse response filter.

4. The system of claim 1 wherein,

the polyphase filter bank comprises a plurality of digital filters each of which is an infinite impulse response filter.

5. The system of claim 1 wherein,

the input signal comprises a plurality of channel signals that are frequency division multiple access signals having a channel bandwidth, and

the polyphase filter bank comprises a plurality of digital filters each of which having a bandwidth equal to 1/2 of a bandwidth of a respective channel signal in the input signal.

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6. The system of claim 1 wherein,

the input signal is an IF wideband signal communicating channel signals communicated within a channel bandwidth,

the complex signal comprises I and Q quadrature baseband signals,

the staggered sampled complex signals are staggered sampled I and Q quadrature baseband signals,

the sampled digital complex signals are digitized staggered sampled I and Q quadrature baseband signals,

the filtered complex signals are baseband channel signals within 1/2 of the channel bandwidth, and

the channelized digital output signals are separated baseband channel signals.

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7. A system for channelizing an IF wideband signal into channelized digital output signals, the system comprising,

a complex mixer for quadrature demodulation of the IF wideband signal into a complex signal communicating channel signals communicated within a channel bandwidth, the complex signal comprises I and Q quadrature baseband signals,

a polyphase clock generator for generating polyphase clock signals each of which having the same clocking signal that is staggered in phase over a clock cycle,

a bank of samplers for respective sampling the I and Q baseband quadrature signals into staggered sampled I and Q quadrature signals, each of the samplers of the bank of sampler sampling the I and Q quadrature signals at a rate of the clock cycle at a respective staggered phase,

a bank of converters for converting the staggered sampled I and Q quadrature signals into respective sampled digital I and Q quadrature signals,

a polyphase filter bank of filters for respective filtering the sampled digital I and Q quadrature signals into respective filtered I and Q quadrature signals, and

a processor for transforming the filtered I and Q quadrature signals into the channelized digital output signals.

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8. The system of claim 7 wherein,

the processor is a Fast Fourier Transform processor for computing N point Fast Fourier transforms of the N filter complex signals once every clock cycle of $(f_s/N)^{-1}$ seconds, and

the polyphase filter bank comprises a plurality of digital filters each of which is a finite impulse response filter.

9. The system of claim 7 wherein,

the IF wideband signal comprises a plurality of channel signals that are in frequency division multiple access signals having a channel bandwidth, and

the polyphase filter bank comprises a plurality of digital filters each of which having a bandwidth equal to 1/2 of a bandwidth of a respective channel signal in the input signal.

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